

## **Preface to the Notes**

The following are notes from the August 21-22, 2001 Marshbird Workshop in Denver. These reflect a number of small edits and additions submitted after the release of the draft notes on September 5, 2001 and after the release of the “final” notes on October 16, 2001.

Please note that this information is PRELIMINARY, being a first-cut by participants at the workshop.

Writing team leaders are identified at the back of the notes. They have been asked to coordinate the expansion and conversion of these notes into a “resource document” (sort of a "working white paper") that will focus on continental-scale population estimates and objectives; habitat needs and objectives; management/conservation issues; research needs and monitoring strategies. This document will not be a "plan" itself but rather a compilation of information that can be used in other bird conservation planning/implementation efforts.

Specifically, this resource document will serve as a basis for a Volume 2: Marshbirds of the North American Waterbird Conservation Plan (NAWCP). It will also be available to inform other bird initiatives and programs, including Partners in Flight (PIF)], the Migratory Shore and Upland Game Bird Committee, Flyways, the IBA Program, Joint Ventures, etc.

Comments and questions should be addressed to [Jennifer\\_A\\_Wheeler@fws.gov](mailto:Jennifer_A_Wheeler@fws.gov).

## Summary from the

# Marshbird Conservation Workshop, August 21-22, Denver, Colorado (October 19, 2001: The “post-Final” version)

## Participants: Please see attached Excel File for additional information

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### **Groups:**

- (1) Loons, Red-necked, Horned, Eared and Western Grebes
- (2) Least and Pied-billed Grebes, Gallinule, Coot, Moorhen, and Bitterns
- (3) Southern Resident Marshbirds and Tropical Rails, Hawaiian Coot, Caribbean Coot, Purple Swampphen
- (4) Northern Migratory Rails (Yellow and Black Rail in one group, and Sora, Virginia, King and Clapper Rails in another subset.
- (5) Cranes
- (6) Monitoring Group (Jon Bart – POC)

### **Workshop Parameters:**

The meeting focused on continental-scale planning, recognizing that implementation is typically at a smaller scale.

It was recognized that marshbirds have already been addressed in part by IAFWA's Migratory Shore and Upland Game Bird Committee, States/Provinces, Flyway Councils, Partners in Flight, Joint Ventures, and recovery plans under the Endangered Species Act in the U.S.

In the U.S., marshbirds are addressed in the North American Waterbird Plan's regional (PUP) efforts already underway. Canada is currently taking a national approach to all-bird conservation, and will consider marshbirds in a subcommittee. Mexico has thus far done little work focusing on marshbirds, though the Important Bird Areas program is well established.

### **Workshop Objectives and Outcomes**

- Share information on existing programs and data
- Review the species list and conservation status assessment scheme
- Draft population objectives for each species at a continental scale
- Draft habitat objectives for each species at a continental scale
- Identify management and conservation issues for marshbirds.
- Provide input for developing a continental monitoring program
- Set in motion a process to identify Important Bird Areas for marshbirds
- Develop a list of priority research needs for marshbirds
- Identify a marshbird plan writing team to draft the plan.

*The write-up for each objective follows.*

## **Information on Existing Programs and Data**

### **Partners In Flight Plans** (K. Rosenberg)

In preparation for the meeting, the PIF Regional Coordinators produced a publication Marshbirds and Partners In Flight: A Summary of Marsh and Associated Wetland Species in PIF Bird Conservation Plans. (Contact a PIF Regional Coordinator for a copy – see above table). This publication summarizes the coverage of marshbirds, along with associated wetland species and habitats, in all Partners in Flight (PIF) Bird Conservation Plans. The plans themselves, and the species assessment database, are available at [www.partnersinflight.org](http://www.partnersinflight.org).

The PIF plans assess priorities by habitat-species suites, which include a number of aquatic habitats and associated marshbirds. Out of the existing 50 PIF plans, 23 explicitly address marshbirds. Eight to ten plans contain numerical objectives (e.g., Lower Great Lakes/St. Lawrence, Mid-Atlantic).

Weaknesses with the PIF plans were identified as:

- poor data on abundance and trends weakens (not negates) the assessment process,
- the focus of the plans is terrestrial,
- the majority of population and habitat objectives have not been developed, and
- wintering species and transients have not been a focus.

In conclusion, PIF coverage is spotty, but good in some areas. These plans would benefit from better data for marshbirds (biological and monitoring).

**Migratory Shore and Upland Game Bird Management in North America**, a.k.a. **The Purple Book** (H. Hands)  
Published by IAFWA in 1994, book is out of print. Copies available through David Dolton.

The book provides data on hunted marshbirds, though it is much more comprehensive for some species than others. New information since 1994 includes:

- Management plans, genetic analysis, and population surveys for the various populations of sandhill cranes
- Waterfowl survey data for American Coot
- Harvest Information Program (HIP) for game birds

### **Marshbird Monitoring Workshop** (M. Howe)

See Proceedings of the Marsh Bird Monitoring Workshop, dated April 1999. Objectives of the meeting were information-sharing, development of standardized monitoring protocols, development of sampling schemes for various scales, and enhanced communication and identification of needs. Work is ongoing to address statistical issues, evaluate sampling frames, refine timing for daily and seasonal sampling, interpret population indices, and monitor habitat change.

### **Birds of North America Accounts** (J. Kushlan)

Detailed accounts exist for Sandhill Crane, Whooping Crane, Yellow Rail, Black Rail, Clapper Rail, King Rail, Virginia Rail, Sora Rail, Least Grebe, Pied-billed Grebe, Red-necked Grebe, Horned Grebe, Least Bittern, American Bittern, Red-throated Loon, Common Loon, and Yellow-billed Loon.

### **Webless Migratory Game Bird Research Program** (D. Dolton)

Annual Project Abstracts are available through David Dolton. \$150,000/year is available for webless game bird research. One-third of the cost must be from non-federal funds. Though focused on game, the program will fund broader projects with non-game species if they include a game species.

### **USGS - Northern Prairie Wildlife Research Center's grassland bird reports (J. Dechant)**

These reports are a series of literature syntheses on North American grassland birds. The need for these reports was identified by the Prairie Pothole Joint Venture (PPJV) -- a part of the North American Waterfowl Management Plan. The PPJV recently adopted a new goal, to stabilize or increase populations of declining grassland- and wetland-associated wildlife species in the Prairie Pothole Region. To further that objective, it is essential to understand the habitat needs of birds other than waterfowl, and how management practices affect their habitats. The focus of these reports is on management of breeding habitat, particularly in the northern Great Plains.

Species accounts, including specific habitat characteristics, have been completed for waterbird species such as the American Bittern, Marbled Godwit, Long-billed Curlew, Wilson's Phalarope, and Willet. Additional species are addressed in draft reports; a list of others will be assessed contingent on funding. The reports are available online at <http://www.npwrc.usgs.gov/resource/literatr/grasbird/grasbird.htm> along with a searchable annotated bibliography.

### **Flyway Report (D. Sharp)**

Flyway Councils were established to effectively integrate state input into federal migratory bird regulations in the United States (several flyways also admit Canadian provinces and territories as members). The Flyway Councils are responsible for representing their member states on matters of state-federal management, research, and utilization of migratory gamebirds within each of their respective flyways. The flyway system has played a role in the management of certain marshbirds since 1948.

Helen Hands and Todd Sanders represented the Central and Pacific Flyway Technical Committees with the primary goal of making people aware of the data, management plans, and management efforts for migratory game birds (e.g., rails and cranes) through the flyway system. They shared management plans with those interested.

### **Salt Marsh Initiative (S. Droege)**

Sam Droege, working with Russ Greenberg at Smithsonian's Migratory Bird Center, and liaisons with FWS, is coordinating a November 2002 meeting to kick off a salt marsh initiative. The initiative will address the rare, endemic, and vulnerable wildlife associated with this habitat. Contact [Sam.Droege@usgs.gov](mailto:Sam.Droege@usgs.gov) for more information.

### **Loon and other marshbird work in Alaska (T. Mills)**

Alaska has a Loon Working Group, whose efforts are documented in The Alaska Loon Working Group Project Directory. Visit <http://www.r7.fws.gov/mbm/loons/>

- Aerial surveys are performed on loons. The focus has been on south-central Alaska as that is where human disturbance is greatest.
- The Exxon Valdez report covers loons and grebes.
- The Alaska Loon-Watch Volunteer Program is an effective outreach vehicle.

### **Loon work in Montana (D. Casey)**

Loons are a priority in Montana. The state has a decade of decent data. The disturbance of lake clusters are a

concern, so there is a public education program to prevent habitat loss and disturbance in chains of lakes. (The Loon Ranger Program). Contact Gael Bissell, Montana Loon Working Group at [gbissell@state.mt.us](mailto:gbissell@state.mt.us)

#### **Loon Work across North America** (D. Evers)

The Biodiversity Research Institute produces the International Directory for Loon Researchers, the Proceedings of the North American Loon Foundation (\$15), as well as other loon reports for state and federal governments. Visit [www.BRILoon.org](http://www.BRILoon.org)

#### **Bird Studies Canada** (S. Timmermans)

Concern about the effects of acid rain and other human disturbances on loons led to the creation of the Canadian Lakes Loon Survey (CLLS). Begun in 1981, this involves volunteer-based national coverage of loon productivity. Water sampling to test lake acidity has been performed since the mid-80s. See <http://www.bsc-eoc.org/cllsmain.html>

#### **Other Loon info**

There is a Ducks Unlimited program for waterfowl in western Canada called the Western Boreal Forest Initiative (contact Gerry Beyersbergen). Ducks Unlimited should be approached to check the feasibility of having loon surveys piggy-backed on waterfowl surveys in the western boreal forest.

#### **The Marsh Monitoring Program** (S. Timmermans)

This program tracks trends in marshbird populations across Great Lakes Wetlands. First tested in 1993, has included birds and calling amphibians of the Great Lakes basin since 1995. Visit [www.bsc-eoc.org](http://www.bsc-eoc.org) In addition to trends, survey provides information on drivers of trends and on habitat associations for sampled species.

#### **Northeast Region Refuge Monitoring** (D. Pence)

A "How To" monitoring document, based on recommendations from the Marshbird Monitoring Workshop, has been developed for refuge managers, to assist them in tracking marshbird populations. Sampling is done by biotechnicians, and stored in a regional database.

#### **Rocky Mountain Bird Observatory's monitoring programs** (R. Leivad)

Rocky Mountain Bird Observatory conducts a statewide, long-term bird-monitoring project known as *Monitoring Colorado's Birds*. The project has two main components: 1) a program of 30 point transects in each of Colorado's main habitats and 2) a program of censusing directly those species (termed "special species") whose ranges, behaviors, and/or ecologies cause them to be under-represented on the transects. Visit [www.rmbo.org](http://www.rmbo.org). This program has generated some statistically valid data for some species.

RMBO also runs Project ColonyWatch, in which volunteers conduct scheduled monitoring of colonially-breeding species.

#### **Work on Rails** (C. Conway)

The California Black Rail monitoring program involves ~3,000 survey points across southern California and Arizona. A draft report is available.

There has been a 20-year, multi-agency effort on Clapper Rail restoration. Under this program, rails are surveyed on

known and potential breeding areas.

Rails on the Colorado River are now a subject of monitoring.

### **Advances in Monitoring** (C. Conway)

There is now a final report summarizing detection probability and the factors affecting detection rates. Includes a literature survey and a meta-analysis of current data.

### **Marshbird work in British Columbia** (A. Breault)

On the coast, a GIS data set is being developed for marine eco-units and transects. Inland, transects are used to cover wetlands. Additionally, a watershed analysis to determine the values of various-sized wetlands is underway. Canada is setting up a meta-database, and waterbird data will be included in the pilot study.

### **Toronto and the Great Lakes** (C. Weseloh)

A census of colonies is performed every ten years. Census reports are generated in both Canada and the U.S. Additionally, contaminant monitoring, focusing on Black and Forster's Terns, is underway.

### **Bitterns**

Soch Lor did graduate work on the foraging and nesting behavior of American Bitterns. Contact her at [skle4f@mizzou.edu](mailto:skle4f@mizzou.edu).

Heidi Bogner performed a NY study on radio-marked Least Bitterns. Contact her at [heb2383@cs.com](mailto:heb2383@cs.com)

### **Prairie Pothole Spatial Analysis** (N. Niemuth)

The USFWS Habitat and Population Evaluation Team (HAPET) is developing spatially explicit models for non-waterfowl species, including marshbirds, as part of an effort to integrate conservation of all birds in the Prairie Pothole Region. Preliminary models showing species occurrence have been developed for marshbirds that are well represented on BBS routes by using data from georeferenced BBS stops in conjunction with landscape-level habitat data. Contact [Neal\\_Niemuth@fws.gov](mailto:Neal_Niemuth@fws.gov).

### **Wetlands Breeding Bird Survey for Ohio** (M. Shieldcastle)

A survey designed to establish wetland breeding bird abundance was initiated in 1990 by the Ohio Division of Wildlife (ODOW) and Ohio Cooperative Wildlife Research Unit (OCWRU). The approach was to first determine what species in Ohio are not adequately covered by the Federal BBS and to secondly, develop a survey that would fill this gap in knowledge. Species inadequately monitored were predominately wetland species but also included forest patch specialists, nocturnal, and relatively non-vocal species. Objectives of the currently experimental Ohio survey are to develop a long-term wetland breeding bird monitoring program representative of Ohio wetlands with adequate sample size and consistent coverage to evaluate population health at state-wide and habitat type levels.

### **Bird Communities in Restored Wetlands**



Jim Dinsmore at Iowa State ([oldcoot@iastate.edu](mailto:oldcoot@iastate.edu)) has been examining the factors that affect recolonization rates and species. One finding is that restored wetlands may be rejected by the birds. When managing and restoring wetlands for wetland birds, the quality of the wetland (i.e., vegetation) must be considered along with hydrology (i.e., water levels).

### **Marshbirds in NE Illinois** (C. Payne and N. Stricker)

Examined ten species of marshbird and multi-scale habitat effects (analyzed vegetation, surrounding land use, etc.) Also, see the Critical Trends Assessment Program in Illinois (D. Nevin)

### **Study on Fire Impacts**

Bill Eddelman will be looking at the impacts of fire on coastal marsh birds in Texas. Fire is a heavily used management tool in coastal marshes, and there's a good chance that current burning practices could have unacceptable negative impacts on coastal marsh birds, most notably Black and Yellow Rails.

### **Eared and Western Grebe Work in Alberta** (Stephen Hanus - [stephen.hanus@gov.ab.ca](mailto:stephen.hanus@gov.ab.ca))

The Government of Alberta, through species at risk funding, is concerned about the status of colonial nesting grebes in Alberta (i.e. western, Clark's and eared grebes). Western and Clark's grebes are currently listed as threatened and eared grebes are listed as stable. Increasing pressures on Alberta lakes may be affecting the status of colonial grebes as a result of habitat loss, disturbance from motorized watercraft, water level fluctuations, and bioaccumulation of pollutants; however, relatively little is known about their population trends within the province. We are in the first year of this multi-year project, and the objectives are to update the status of colonial nesting grebes in Alberta, and implement conservation measures where required. (Though focused on colonial grebes, study yields substantial information on marshbirds, particularly Red-necked Grebes.)

### **May Survey on Canadian Prairies** (Gerry Beyersbergen)

Gerry Beyersbergen notes that on the Canadian prairies, as part of the ground component of the annual spring surveys of waterfowl "air/ground surveys," they are recording various grebe species occurrences. This information could be used to get an estimate of Canadian prairie numbers on these sample routes.

Followup by Dave Duncan: The grebe data collection as part of the waterfowl May survey ground component has longer term information (5-10 years) from southern Manitoba but has only just started recently (past 2 years) in southern Alberta and Manitoba. The strength of the dataset will primarily be for monitoring trend in numbers over time (mainly longer term) but it will also enable some wetland-grebe relationship analyses and a rough estimate of population size and relative density within those areas. We have not had an opportunity to examine this data yet but perhaps will be able to do so within next 6 months if we can gain some assistance.

### **Other**

John ??? - reported on some related University of Michigan graduate work

Jules Evans mentioned the Point Reyes Bird Observatory work on Clapper Rails in San Francisco Bay.

Frank Durbian discussed a study of habitat use versus habitat quality.

## Species List and Prioritization Scheme

### Marshbird Species List

S/M #	English Name	Scientific Name	
2745	Sunbittern	<i>Eurypyga helias</i>	
2777	Sandhill Crane	<i>Grus canadensis</i>	hunted game bird in US - NAWMP
2783	Whooping Crane	<i>Grus americana</i>	non-hunted game bird in US
2786	Limpkin	<i>Aramus guarauna</i>	
2789	Sungrebe	<i>Heliornis fulica</i>	
2809	Yellow Rail	<i>Coturnicops noveboracensis</i>	non-hunted game bird in US
2825	Ruddy Crake	<i>Laterallus ruber</i>	
2826	White-throated Crake	<i>Laterallus albigularis</i>	
2827	Gray-breasted Crake	<i>Laterallus exilis</i>	
2828	Black Rail	<i>Laterallus jamicensis</i>	non-hunted game bird in US
2841	Buff-banded rail	<i>Gallirallus philippensis</i>	Permanent resident on Am. Samoa (Pratt et al. 1987)
2843	Guam rail	<i>Gallirallus owstoni</i>	Permanent resident on Guam and nearby islands (Pratt et al. 1987)
2850	Clapper Rail	<i>Rallus longirostris</i>	hunted game bird in US - NAWMP
2851	King Rail	<i>Rallus elegans</i>	hunted game bird in US - NAWMP
2853	Virginia Rail	<i>Rallus limicola</i>	hunted game bird in US - NAWMP
2869	Rufous-necked Wood-Rail	<i>Aramides axillaris</i>	
2870	Gray-necked Wood-Rail	<i>Aramides cajanea</i>	
2875	Uniform Crake	<i>Amaurolimnas concolor</i>	
2891	Sora	<i>Porzana carolina</i>	hunted game bird in US - NAWMP
2897	Spotless Crake	<i>Porzana tabuensis</i>	Permanent resident on Am. Samoa (Pratt et al. 1987)
2900	Yellow-breasted Crake	<i>Porzana flaviventer</i>	
2903	Zapata Rail	<i>Cyanolimnas cerverai</i>	
2904	Colombian Crake	<i>Neocrex colombianus</i>	
2905	Paint-billed Crake	<i>Neocrex erythrops</i>	
2906	Spotted Rail	<i>Pardirallus maculatus</i>	
2913	Purple Swamphen	<i>Porphyrio porphyrio</i>	Permanent resident on Am. Samoa (Pratt et al. 1987)
2917	Purple Gallinule	<i>Porphyrio martinica</i>	hunted game bird in US - NAWMP
2922	Common Moorhen	<i>Gallinula chloropus</i>	hunted game bird in US - NAWMP
2930	Hawaiian Coot	<i>Fulica alai</i>	non-hunted game bird in US
2931	American Coot	<i>Fulica americana</i>	hunted game bird in US - NAWMP
2932	Caribbean Coot	<i>Fulica caribaea</i>	Included with other coots in US hunting regulations
3615	Least Grebe	<i>Tachybaptus dominicus</i>	
3616	Pied-billed Grebe	<i>Podilymbus podiceps</i>	
3621	Red-necked Grebe	<i>Podiceps grisegena</i>	
3623	Horned Grebe	<i>Podiceps auritus</i>	
3740	Least Bittern	<i>Ixobrychus exilis</i>	
3745	American Bittern	<i>Botaurus lentiginosus</i>	
3746	Pinnated Bittern	<i>Botaurus pinnatus</i>	
3845	Red-throated Loon	<i>Gavia stellata</i>	
3846	Arctic Loon	<i>Gavia arctica</i>	
3847	Pacific Loon	<i>Gavia pacifica</i>	
3848	Common Loon	<i>Gavia immer</i>	
3849	Yellow-billed Loon	<i>Gavia adamsii</i>	

	Accidentals/Casuals		
S/M #	Scientific Name	English Name	Occurrence
2781	<i>Grus grus</i>	Common Crane	Accidental in AK, Alberta and Nebraska, AOU (1998)
2811	<i>Micropygia schomburgkii</i>	Ocellated Crake	One record from Costa Rica, AOU (1998)
2864	<i>Crex crex</i>	Corn Crake	Casual on Baffin Island, along Atlantic coast of N. America, Bermuda, AOU (1998)

2889	<i>Porzana porzana</i>	Spotted Crane	Accidental in Lesser Antilles, AOU (1998)
2918	<i>Porphyryula flavirostris</i>	Azure Gallinule	Accidental in Trinidad and NY, AOU (1998)
2929	<i>Fulica atra</i>	Eurasian Coot (Common)	Included with other coots in US hunting regulations. Casual or accidental in AK, Labrador, Quebec & Northern Mariana Islands, AOU (1998)
2901	<i>Porzana cinerea</i>	White-browed Crane	Accidental on Guam (Pratt et al. 1987)

The list of birds under consideration does not comprise the full list of “marshbirds,” as there are many landbirds that inhabit marshes (i.e., raptors, marsh wrens, etc). It was recognized that these latter species are dependent on wetlands and are thus of conservation concern. However, this assessment will be limited to non-colonial, non-waterfowl waterbirds.

### **Species Prioritization Scheme (Conservation Status Assessment)**

Alexandra Wilke from Manomet Bird Observatory sought input on the species list. Manomet is also exploring prioritization for marshbirds. In particular, the group was asked to comment on the suitability of the colonial waterbird scheme for the secretive marshbirds. Volunteers were recruited to assist with the collection of information and the review of priority scores as they are developed.

### **Break out Groups**

Workshop participants determined the best break-out groups to work through developing population and habitat goals. The break out groups were as follows:

- (1) Loons and open water grebes (Red-necked, Horned)
- (2) Least and Pied-billed Grebes, Gallinule, Coots, Moorhen
- (3) Southern Resident Marshbirds and Tropical Rails, Hawaiian Coot, Caribbean Coot, Purple Swampphen
- (4) Northern Migratory Rails – Yellow, Black, Virginia, King, and Clapper Rails, Sora, and Bitterns
- (5) Cranes

Note: At the end of the workshop, Bitterns were moved from group 4 to group 2.

### **Population Estimates and Goals for Each Species at a Continental Scale**

Terms are loosely defined. Population could be a species in entirety, a metapopulation, a management unit. Population goals could be numbers, trends, or even a plan for monitoring.

### **Note: these estimates are PRELIMINARY**

Alexandra Wilke shared a table of population estimates derived from the literature.

#### **Group (1): Loons and open-water Grebes**

Working Group: Dave Evers (leader),

Introduction: Within this group, good data are available only for the Common Loon.

Table:

Species	Binomial Name	Population Estimate	Source and qualifiers	Population Goals	Rationale for goals
Common Loon	<i>Gavia immer</i>	continental: 250,000 territorial pairs			
Yellow-billed Loon	<i>Gavia adamsii</i>	continental: 4,000 - 5,000 territorial pairs			
Pacific Loon	<i>Gavia pacifica</i>	continental: 300,000-500,000 territorial pairs; 45,000 pairs in Alaska			
Arctic Loon	<i>Gavia arctica</i>	<100 pairs			
Red-throated Loon	<i>Gavia stellata</i>	continental: 125,000 territorial pairs			
Red-necked Grebe	<i>Podiceps grisegena</i>	55,000 - 70,000 pairs			
Horned Grebe	<i>Podiceps auritus</i>	100,000-200,000 pairs			

Narrative:

### **Common Loon** (*Gavia immer*)

Population estimate: Continental estimate is 250,000 territorial pairs. Assuming 80% of the population is paired for breeding, this translates to 600,000 individuals. The majority of Common Loons occur in North America (Canada); global estimate is similar to continental.

Population goal:

### **Yellow-billed Loon** (*Gavia adamsii*)

Population estimate: continental: 4,000 - 5,000 territorial pairs

Population goal:

### **Pacific Loon** (*Gavia pacifica*)

Population estimate: continental: 300,000-500,000 territorial pairs;  
45,000 pairs in Alaska

Population goal:

**Arctic Loon** (*Gavia arctica*)

Population estimate: <100 pairs

Population goal:

**Red-throated Loon** (*Gavia stellata*)

Population estimate: continental: 125,000 territorial pairs

Population goal:

**Red-necked Grebe** (*Podiceps grisegena*)

Population estimate: 55,000 - 70,000 pairs

Population goal:

**Horned Grebe** (*Podiceps auritus*)

Population estimate: 100,000-200,000 pairs

Population goal:

**Group (2): Least and Pied-billed Grebes, Coots, Moorhens, and Gallinules**

Working Group: Greg Butcher (leader)

Introduction: For each species, an assessment of existing information, recommended best methods for new information, and information needs was performed.

**Pied-billed Grebe**

Existing information:

North Dakota - 12,000 pairs in 1992-1993

Christmas Bird Count – 25,000 in 1995 from 21,000 in 1994

State Data – Hit and miss, some good, some poor

BBS data are marginally OK for population trend, and indicate a significant increase survey-wide.

BBS may be very useful to estimate a minimum population size

Waterfowl surveys not reliable

Professional judgement indicates stable populations

Best Methods:

Follow annual trends/indices of wetlands

Perform detailed analysis of CBC data – should be fairly accurate – to establish annual indices

Adopt Marshbird Protocol to monitor or grebe-specific approach (Bird Studies Canada – Great Lakes Program)

Needs:

Need density estimates (research) to come up with numeric population objectives

Determine breeding and wintering population in Caribbean and Mexico, and wintering population in Central America

Extrapolate CBC data for total population

In stronghold (North Dakota and Prairie Potholes particularly), watch/monitor closely to gauge continental population

Maintain population levels in North Dakota and Prairie Potholes

At periphery of range, monitor birds and wetland trends to ensure distribution

## **American Coot**

Existing Information:

Breeding grounds survey yielded 3 million coots!

CBC provides decent data.

BBS – Well sampled: Detected on 550 routes rangewide with an average of 2.29 birds/route. A non-significant positive trend is estimated.

BBS may be very useful to estimate a minimum population size

Mid-winter waterfowl survey provides decent data

Harvest data (?) could produce annual indices

(Need to get information from flyway folks)

Professional judgement indicates stable to increasing population trends

Needs:

Survey waterfowl folks to see the data available; e.g., from air/ground waterfowl surveys in May across most of North America; and from CWS ground crews in prairie Canada for last several years.

Perform CBC analysis for annual indices

Determine if coots exclude other marsh species (water quality?). If so, population objective may be to control or decrease.

## **Common Moorhen**

Existing Information:

BBS not reliable for trends, but may be very useful to estimate a minimum population size

Waterfowl surveys – do they provide data?

Harvest data (?) could produce annual indices

Migrant populations in the northeast of concern in most states

CBC data available (maybe not as representative as for coots)

Professional judgement – variable trends across range. Up in SW, down in NE.

## **Best Methods**

Follow annual trends/indices of wetlands

Adopt Marshbird Protocol to monitor

## **Needs:**

Assess its proportion of wintering population in the U.S.

How well does the Marshbird Protocol survey this species?

Assess its breeding population in Mexico.

## Purple Gallinule

### Existing Information:

No real data available

CBC of only limited use (e.g., in Florida)

BBS data not reliable (the U.S. population just a small proportion of global)

Harvest data – lumped with moorhens

Professional judgement indicates populations are probably declining.

### Best Methods:

Adopt Marshbird Protocol to monitor

Marshbird survey in SE states

### Needs:

Impacts on population from the depredation order (e.g., in rice fields)

Caribbean-Mexico winter survey

## Least Grebe

### Existing Information:

South Texas bird – periphery – fluctuates based on conditions

Mexican wetland trends?

## Group (3): Southern Tropical Marshbirds

Working Group: Robert Mesta, Carol Beardmore, Maura Naughton, Keith Watson, Jorge Correa Sandoval, Eric Mellink, Miquel Angel

Introduction: Insufficient data exist to estimate current populations of these birds. Rather, a qualitative analysis of abundance, vulnerability, and core of distribution was performed. Population goals were similarly qualitative.

Table:

Species	Binomial Name	Abundance	Vulnerable?	Core of Distribution within North/Central America?	Population Objective
Sunbittern	fill in later	Rare	Yes	No	Maintain existing population
Limpkin		Common	No	No	Maintain existing population
Sungrebe		Common	Yes	No	Maintain existing population
Ruddy Crake		Common	No	Yes	Maintain existing population
White-throated Crake		Common	No	Yes? Might be S.America	Maintain existing population
Gray-breasted Crake			No	No	Maintain existing population

		Common			
Buff-banded Rail		Common?	Yes?	?	?
Guam Rail		Rare?	Yes?	Yes?	Increase existing population
Clapper/King Rail (central Mexico pop.)		Rare	Yes	Yes (endemic)	Increase existing population
Rufous-necked Wood Rail		Common	No	Yes?	Maintain existing population
Gray-necked Wood Rail		Abundant	No	No	Maintain existing population
Uniform Crake		Uncommon	Yes	No	Maintain existing population
Spotless Crake		Rare	Yes	No	Increase existing population
Yellow-breasted Crake		Uncommon	No	No?	Maintain existing population
Zapata Rail		?	?	Cuba (others?)	?
Columbian Crake		?	?	?	Does not extend north of Central America
Paint-billed Crake		?	?	?	Does not extend north of Central America
Least Grebe		Common	No	No	Maintain existing population
Northern Jacana		Common	No	Yes	Maintain existing population

#### Group (4): Northern Migratory Rails and Bitterns

Working group: Courtney Conway

Introduction: Several western subspecies/races are rare, threatened, or endangered. Others are generally relatively common and ubiquitous, and there are little data to quantify population numbers or goals. However, for those subspecies or races that are rare or endangered -- and as a result, have been subject to better monitoring -- population numbers can be estimated.

Table:

Species	Binomial Name	Population Estimate	Source and qualifiers	Population Goals	Rationale for goals
Yellow Rail Clapper Rail (eastern) King Rail Virginia Rail	fill in later	insufficient data  (Some BBS data for Virginia Rail, Sora, and King Rail. King		Increase population to pre- 1970s levels and prevent range contraction (e.g., maintain at X%).	



Sora Least Bittern American Bittern		Rail shows significant decline).		Obtain more accurate information	
Yellow Rail (Oregon population)		65 - 300 individuals		$\geq 200$ breeding pairs	
California Black Rail		~10,000 individuals in SF Bay ~200-400 individuals in Sacramento Valley ~100 - 200 individuals on central CA coast ~150-300 individuals on so. AZ/so. CA		20,000 individuals $\geq 4$ populations/regions with $\geq 500$ individuals No reduction in #s in any of 4 existing populations/regions  Obtain more information on status/distribution in Mexico  Check SF Bay Goals project for their population goal	
Eastern Black Rail		ran out of time			
Clapper Rail (3 western races)		ran out of time			

Narrative:

Yellow Rail  
Clapper Rail (eastern)  
King Rail  
Virginia Rail  
Sora  
Least Bittern  
American Bittern

Population estimate: Insufficient data exist to estimate current populations. American bittern (524 routes) and sora (408 routes) are well represented in BBS, but other species have less than 75 routes for estimating population trend. American bittern, king rail, and least bittern show population declines, but Virginia rail shows increases in BBS data available.

Population goal: Increase populations to pre-1970s levels and prevent range contraction (e.g., maintain at X%).  
Obtain more accurate information

Yellow Rail (Oregon population)  
Population estimate: 65 - 300 individuals  
Population goal:  $\geq 200$  breeding pairs

California Black Rail  
Population estimate:

~10,000 individuals in SF Bay  
 ~200-400 individuals in Sacramento Valley  
 ~100 - 200 individuals on CA coast  
 ~150-300 individuals on so. AZ/so. CA

Population goal: 20,000 individuals total, with  $\geq 4$  populations/regions with  $\geq 500$  individuals. No reduction in #s in any of 4 existing populations/regions. *Obtain more information on status/distribution in Mexico.*  
*Check SF Bay "goals" project for their goal*

Eastern Black Rail  
 finish....

Clapper Rail (3 western subspecies)  
 finish....

## Group (5): Cranes

Working Group: Helen Hands (leader)

Introduction: Numbers for the Sandhill Crane are based on flyway management plans for migratory populations and USFWS recovery plans for endangered non-migratory subspecies. [There are 9 populations of sandhill cranes (representing 6 subspecies) recognized by the flyways and two populations of whooping cranes (wild and experimental non essential), which are endangered and have recovery plans. Three populations of sandhill cranes are nonmigratory (Cuba, Mississippi, and Florida); Cuban and Mississippi cranes are endangered and have recovery plans; so does Florida. Six populations are migratory (Pacific Coast, Central Valley, Rocky Mountain, Lower Colorado River Valley, Mid-continent including both Western and Gulf Coast subpopulations, and eastern) and have flyway management plans.]

### Sandhill Cranes:

Population	Subspecies	Goal	Current Index	Survey	Trend
Mid-continent	Greater, Lesser, Canadians	Index of 343,000-465,000 (spring)*	435,000 (2000)	Platte River (aerial)	Stable to slightly increasing
Rocky Mountains	Greater	17,000-19,000 (fall)	19,990 (2000)	Coordinated air-ground, all states	Stable to increasing
Pacific Coast	Lesser	20,000-25,000 (winter)	~35,000 (2001)	mid-winter waterfowl survey	Increasing
Lower Colorado River	Greater	2,500 (winter)	2,600 (2000)	Coordinated special survey	Increasing
Central Valley	Greater	7,500 (winter, fall)	10,000 (Nov 2000)	Coordinated special survey	Increasing
Eastern	Greater	13,850	26,656 (1992)	Fall-staging Jasper-Pulaski, IN	Increasing
Cuban	Cuban	Get recovery plan paper from ICF Workshop	<200		
Florida	Florida	Get recovery plan	4,000-6,000		
Mississippi	Mississippi	Get recovery plan	134?		

- An index of 435,000 corresponds to an actual population estimate of 510,000. To make comparable to a fall population index, should add estimated annual harvest of approximately 35,000.

### Whooping Cranes

Population	Subspecies	Goal	Current Index	Survey	Trend
Wild		Get recovery plan	187		Stable to slightly increasing

Experimental/ Non-essential	Florida nonmigratory		78		
	WI-FL migratory				
	Rocky Mountains cross-fostering project		2		

### Management and Conservation Issues

Further reductions in flow of the Platte River in Nebraska could further concentrate sandhill cranes on fewer reaches. Because nearly all mid-continent sandhill cranes stage here in spring, this could significantly increase competition for food and increase the chance for a major die-off from disease.

Continued increases in the populations of Snow and Ross' Geese could further increase competition between these species and sandhill cranes while staging on the Platte River in spring.

## **Habitat Needs and Draft Habitat Objectives for Each Species at a Continental Scale**

Ideally, habitat goals would be quantitative measures of areal extent. If this information is not available, documenting species-specific habitat requirements can still be of use to land managers.

**Note: these estimates are PRELIMINARY**

### **Group (1): Loons and open-water Grebes**

Introduction:

Due to a scarcity of good data, acreage objectives are estimated only for the Common Loon and Yellow-billed Loon. The Common Loon, for which habitat needs over a large area can be modeled, requires site-based protection in its breeding range. Additional research should be done to establish a breeding habitat goal for the North American population of Yellow-billed Loon. There are few breeding habitat issues for the other loons and open-water grebes, thus less of a need for an acreage goal.

Wintering areas, for which densities are unknown, are of the most conservation concern. Monitoring points should be established for migration, molt, and staging areas.

Table:

Species	Binomial Name	Breeding Distribution (BCRs)	Habitat Needs	Habitat
Common Loon		4, 5, 6, 7, 8, 10 (50%), 11, 12, 14	Visibility NTU>24 Soft shoreline (e.g., bog mats, wetlands) Islands are optimal Lakes w/ <3m are prone to fishkill Optimal pH 6.5-7.5	Breedin 15-30 ε 30-60 ε >60 aci >200 a
Yellow-billed Loon		3 (50%)	Tundra, oil platforms, footprints, roads and associated activities	Breedin >25 aci
Pacific Loon		2, 3, 4 (80%), 6 (50%), 7 (25%)	Tundra and forest, open lakes to weed-choked ponds, 4-10 ha (10-25 acres). Limitations with habitat not limiting? Global population?	
Arctic Loon		part of 2		

Red-throated Loon		Primarily 2,3; also 6,7 (except coastal pops?)	Smaller lakes, with nearby feeding areas (primarily ocean, also lakes and rivers)	
Red-necked Grebe		Primarily 4, 6; also 9 (10%), 10 (60%), 11 (67%), and 23 (10%).	Summer Range: Shallow lakes and beaver ponds >2 ha (>5 ac). Mostly open water with emergent vegetation (Sciurus, pond lily). Protective coves. Same water quality issues as loons.  Winter Range: Primarily coastal habitat, often extensive areas and far offshore.	
Horned Grebe		4 (80%), 6, 10 (60%), 11 (50%), also 7 (25%), 8 (20%)	Small, shallow water bodies 0.5 - 10 ha (2.5 - 25 ac). Open water with emergent/ submergent vegetation, brackish to alkaline, prey base of insects, fish, crustaceans at < 6 meters - fluctates?	

Narrative:

### **Common Loon**

Breeding Habitat: Breeds in BCRs 4, 5, 6, 7, 8, northern? half of 10, 11, 12, and 14. Optimal breeding habitat has soft shorelines....

Migration/Staging Areas: Population is more concentrated in fall than in spring. Important areas include the Great Lakes, esp. Lake Michigan, FC? panhandle, Walker Lake, Leach/Mille Lacs (MN), northern Ontario/PQ

Wintering Areas: Chesapeake Bay (BCR 30), primarily? NC, eastern Gulf. Also in BCR 5.

### **Yellow-billed Loon**

Breeding Habitat: Breeds only in southern? half of BCR 3 (arctic plains and mountains). Natural habitat is tundra; also makes use of oil platforms.

Migration/Staging: Important areas include Great Slave Lake.

Wintering Areas: Nearshore marine waters, possibly on the western Pacific.

### **Red-throated Loon**

Breeding Habitat: Primarily BCRs 2 and 3, also 6 and 7 (except coastal pops?). Prefer smaller lakes, with nearby feeding areas (primarily ocean, also lakes and rivers).

Migration/Staging Areas: Mostly coastal, though 1000s use an inland route along Lake Ontario. Important areas include Avalon, NY. Western migration route possible?

Wintering Areas: In the east, the Carolina coasts. Occurrence and concentrations in the West unknown.

### **Pacific Loon**

Breeding Habitat: 2, 3, 4 (80%), 6 (50%), 7 (25%). Uses tundra to forest, open lakes to weed-choked ponds of 4-10 hectares (10-25 acres). Limitations with habitat not limiting? Global pop?

Migration/Staging Areas: Monitoring is done at Pigeon Point, CA.

Wintering Areas: Occurs in high densities when herring spawn.

### **Arctic Loon**

Breeding Habitat:

Migration/Staging Areas

Wintering Areas

### **Red-necked Grebe**

Breeding Habitat: Primarily 4, 6; also 9 (10%), 10 (60%), 11 (67%), and 23 (10%). It is estimated that approximately half the population in North America occurs in Alberta. Breeding habitat is primarily on shallow lakes and beaver ponds >2 ha (>5 ac). Lakes used by red-necked grebes are characterized by having mostly open water (~60-80%) with some emergent vegetation, such as bulrush and pond lily (~20-40%). Because red-necked grebes build precarious floating nests, they require protective coves, islands, and shorelines protected from prevailing winds for successful nesting. Generally considered sensitive to human disturbance, and thus select their nesting sites accordingly. Same water quality issues as loons.

Migration/Staging Areas: Poorly known. Manitoulin? Island, Bays in Lake Huron. Unknown when molting occurs. In 1992, 18 739 red-necked grebes were observed migrating through Lake Michigan in 727 hours of daylight observation. The division line for those that migrate to the Pacific Coast and Atlantic coast lies somewhere in Manitoba.

Wintering areas include the Pacific coast (Southern British Columbia - Boundary Bay, and California - Humboldt Bay) Atlantic Coast, and southern mainland USA. They tend to prefer extensive area far from shore when overwintering along coastlines, as opposed to shallow areas.

### **Horned Grebe**

Breeding Habitat: BCRs 4 (80%), 6, 10 (60%), 11 (50%), also 7 (25%), 8 (20%). Small, shallow water bodies 0.5 - 10 ha (2.5 - 25 ac). Open water with emergent/ submergent vegetation, brackish to alkaline, prey base of insects, fish, crustaceans at < 6 meters - fluctates?

Migration/Staging Areas: Coastal, large water bodies >1000 hectares. Likely Great Lakes. Molt during...

Wintering Areas: Mostly on West Coast. On East Coast, Carolinas and in Florida (Tampa to Panhandle)

## **Group (2): Least and Pied-billed Grebes, Coots, Moorhens, and Gallinules**

**Revise based on input from Greg Butcher**

Breakout team:

Introduction: For all species, need a landscape-level understanding of habitat relationships in wetland complexes and isolated wetlands.

Recommended approach is to start with NAWMP for habitat objectives. NAWMP should capture Pied-billed Grebe, American Coot, and Common Moorhen, with its goals for wetland habitat. However, Purple Gallinule may need to have more specific needs addressed.

### **American Coot**

Requirements: Most similar to dabbling duck habitat (e.g., widgeon in winter).

Semi-permanent wetlands used for breeding; aquatic with grass edges for wintering

Objectives: May need to disperse during staging/wintering to maintain water quality.

Continental goal – no net loss of wetland habitat

### **Pied-billed Grebe**

Requirements: Similar breeding habitat to coot. Seasonal or semi-emergent wetlands. Wintering habitat is within emergent wetland vegetation.

Similar to dabbling ducks.

Objectives:

Continental goal – no net loss of wetland habitats, especially those with equal proportions emergent vegetation and water

### **Purple Gallinule**

Requirements: Breeding habitat – fresh to intermediate salinity with floating and emergent vegetation and stable water levels.

Objectives:

Encourage management practices that maintain floating vegetation (e.g., lily pads)

Enhance existing habitat with floating vegetation where appropriate and increase freshwater wetlands by X%.

Restore lost freshwater wetlands.

Decrease dependency on rice fields for habitat where opportunities are available. Restore fallow rice fields to wetlands.

Manage concurrently with Common Moorhen, Whistling Duck on Puga winter habitat. Same with Masked Duck and Jacana in Mexico?

### **Common Moorhen**

Requirements: Breeding and wintering habitat: dense emergents with equal cover/open freshwater marsh (similar to coot)

Objectives:

Special concerns in NE (on state lists)

Continental goal – restore and enhance freshwater marshes with representative vegetative cover and open water, especially where losses have been greatest (e.g., Gulf Coast)

### **Least Grebe**

Requirements: Shallow water with emergent vegetation and water. (More water than gallinule/More vegetation than coot).  
 Best duck similarities (Whistling Duck, Shoveler, Blue-winged Teal).

Objectives: Restoration as described above for Purple Gallinule and Common Moorhen, especially throughout Mexico and Caribbean and South Texas.

## Hawaiian Coot

See Recovery Plan

### Group (3): Southern/tropical marshbirds

Working Group: Robert Mesta, Carol Beardmore, Maura Naughton, Keith Watson, Jorge Correa Sandoval, Eric Mellink, Miquel Angel

Introduction: Information to generate quantitative habitat goals does not exist. An alternative, qualitative approach to assessing habitat was used instead.

Wetland Habitat	Distribution	Abundance	Vulnerable?
Mangrove			
Pacific Slope	Widespread	Not abundant	Yes
Atlantic Slope	Widespread	Abundant	No
Freshwater Marsh			
Interior	Restricted	Not Abundant	Yes
Coastal	Widespread	Abundant	Yes
Brackish Marsh	Widespread	Abundant	Yes
Riparian			
Forest Overstory	Restricted	Not Abundant	Yes
Shrubby Overstory	Restricted	Not Abundant	Yes
Floated Woodland	Restricted	Not Abundant	Yes
Lakes	Restricted	Not Abundant	Yes
Ponds	Widespread	Moderately Abundant	Yes
Ditches	Widespread	Moderately Abundant	No
Flooded Grasslands	Restricted	Not Abundant	Yes
Cenotes (deep wells)	Restricted	Locally Abundant	Yes



#### Threats to habitats:

Aquaculture  
Saltmining  
Wetland farming (rice)  
Siltation from upland sources  
Grazing  
Development (urbanization, tourism, recreation)  
Disturbance (recreation, construction)  
Water diversion  
Contamination (sewage, pesticides, fertilizers, industrial, petroleum)  
Oil Spills

#### Research Needs

Inventory Bird Species  
Determine the use of habitats  
Determine status and threats to habitat

#### Conservation Needs

Develop conservation plans for each habitat based on a strategy of protection to preserve what exists today.

#### **Group (4): Northern Migratory Rails and Bitterns**

Working group: Courtney Conway....

Introduction: Information to generate effective habitat goals at the continental or national level is not currently available.  
*Check recovery plans for 3 western clapper rail subspecies for habitat goals and incorporate.*

#### Table:

Species	Binomial Name	Distribution (give BCRs?)	Habitat Needs	Habitat Goals
American Bittern	fill in later	Breeding: Highest densities in Prairie Potholes north to Canadian Parklands and Northern Great Lakes north to central Ontario/Quebec (PUPs 6,7,8,9,13)  Wintering: Important areas - Big Cypress Swamp, Lake Okie. <i>(Check Ducks Unlimited Mexico for role of coastal Mexico areas)</i>	Breeding: Large wetlands and wetland complexes (100-250 ha home range), including large interior marshes with stable water levels for molting and undeveloped surrounding grassland-upland interface.  Wintering: Less overlap with waterfowl habitat needs compared to breeding habitat needs. Coastal marsh/prairie edge. Need more info.	Increase the quality and quantity of both breeding and wintering habitat to pre-1970s levels
Yellow Rail				same
Eastern Clapper				same

Rail races				
Western Clapper Rail races				Increase the quality and quantity of both breeding and wintering habitat to 1900 levels
King Rail				same
Virginia Rail				same
California Black Rail				Increase the quality and quantity of both breeding and wintering habitat to 1900 levels
Eastern Black Rail				same
Sora				same
Least Bittern				same

Narrative:

#### American Bittern

Breeding Habitat: Large wetlands and wetland complexes (100-250 ha home range), including large interior marshes with stable water levels for molting, and undeveloped surrounding grassland-upland interface. Range: Highest densities (important areas) include Prairie Potholes north to Canadian Parklands and Northern Great Lakes north to central Ontario/Quebec and east to east coast (PUPs 6,7,8,9,13)

*Use BBS/Atlas data to identify core/important areas*

Migration/Staging Areas:

Wintering Areas: Less overlap with waterfowl habitat needs compared to breeding habitat needs. Coastal marsh/prairie edge. Important areas - Big Cypress Swamp, Lake Okie. (*Check Ducks Unlimited Mexico for role of coastal Mexico for wintering bitterns*)

Others

Finish....

#### Group (5): Cranes

Revise based on input from Helen Hands

## Management and Conservation Issues for Marshbirds

Non-colonial, non-passerine, non-shorebird, non waterfowl, waterbird issues:

### **Continental Issues:**

#### Water Level Management

Marsh management/water level manipulation – Most often, there is no effort to manage water levels to produce conditions conducive to specific vegetation. In most restored wetlands there is no means to manage water levels.

Timing of water level manipulation in reservoirs – We must consider the timing of draw downs or inundations relative to nesting success of loons and grebes. Both draw downs and high water levels (nest inundation) during the breeding season can result in failed breeding success.

Timing is important in control-level marshes - Need to know species and habitat requirements to allow complex wetland management for multiple species (waterfowl, shorebirds, marshbirds, etc...).

Private lands – water management. The timing of dewatering and timing of haying has important implications for rails, cranes, and bitterns during breeding season. Dates need to be set for de-watering and haying to protect breeding marshbirds.

Lake Ontario – reduced water level fluctuations. Native marshes are becoming monotypic cattail marshes. This is a problem everywhere (static water levels).

Complexes – very important to many of these bird species. Need variety of wetland habitats.

Flood Control – is an issue everywhere for wetland systems.

#### Loss/Alteration of Wetland Habitat

Today's wetland regulations result in protection of only the marshes but do not protect the buffers surrounding the wetland. These buffers are lost to development or other uses. Marshbirds need the complex of habitat types associated with a wetland system, not just the marsh itself.

Shoreline development along lakes and waterways – this is occurring across the continent and is taking away important wetland habitats.

Changes in regional wetland density – mitigation banks – there is the potential to lose large number of small wetlands for one large wetland. This needs to be studied.

In TX – 404 permits – usually have mitigation that is unsuccessful but nobody is regulating this. There is no follow-up. This is a huge issue.

There is no follow up even public works projects. No evaluation of success of the mitigation or checking to see if the mitigation was ever completed. There needs to be a system set up to check the success of wetland mitigation after wetland fill permits are granted.

Cattle – seasonal grazing of cattle in riparian areas results in its destruction and habitat loss for coots, grebes, loons, rails.

Sedimentation in agricultural areas has resulted in a loss of available habitat for rails and bitterns.

Particularly in California, agricultural foraging habitat is being lost to urbanization and conversion to incompatible crops (orchards, vineyards). This is impacting crane populations.

Legislation – agricultural subsidies – makes provisions for landowners to drain lands. People haven't wanted to tackle this one – it's huge.

There has been a loss of backshore tree species with a permanent conversion of wetlands to agriculture. This changes the wind dynamics, which is important to vegetation.

#### Nutrients/Runoff/Pollution

Fertilizer runoff/nutrient enrichment in fresh water lakes - Species dependent on water clarity for successful foraging need to be part of the equation when managing/controlling nutrients in fresh water lakes. For example, Loons, Red-necked grebes, Pied-billed grebes all depend on water clarity.

Urban landscapes – runoff from impermeable surfaces is a problem.

Pesticide are an issue on wintering grounds, resulting in toxic accumulation in grebes and loons.

Oil spills are an issue of these birds.

Long range transportation of air pollutants results in increased acidity in lakes. This affects loons and grebes.

Fishing line and plastic pollution – This is a problem for loons and grebes (and many other species). In Anchorage, this is a big problem.

#### Abundant Species

Coots – The proliferation of the Coot population has had impacts on water quality and competitive exclusion – this may go both ways. There may be some benefits to waterfowl.

#### Disease

Increase in botulism E in the Great Lakes and Salton Sea is a problem for loons, grebes. These species may be immunosuppressed making them more susceptible to both botulism E and mercury poisoning.

Disease affecting coots (AVM) in Arkansas, South Carolina, Wisconsin.

West Nile virus spread is causing increased use of pesticides known to be detrimental to birds.

#### Introduced Species

Non-native fish species in fresh water lakes must be managed – For example, Northern Pike alters the prey base potentially important to grebes. This species also acts as a predator.

Common carp are detrimental to emergent wetland communities and actually change the native vegetation and fish communities. They also cause an increase in turbidity – which is a problem for marshbirds dependent on water clarity to forage (sight-based foragers).

Carp are also detrimentally impact submerged vegetation.

Pacific Islands, San Fran Bay – introduced predators are a big problem for nesting birds.

#### Mosquito Control/Impoundments

Mosquito ditching – causes change in water regime/tidal regime.

Need to “control” the types of salt marsh management that are used. For example, in ditching, one management technique spreads sediments evenly throughout the marsh, making it impossible to restore the marsh in the future. Clapper and Black rails and salt marsh sparrows are all influenced by the management of mosquito impoundments.

#### By-Catch

On the Pacific coast, loons and grebes may be affected by fisheries by-catch. We don’t know whether these species are being affected at this point but need to answer this question.

Gill nets have been shown to result in the capture of loons off the coast of New Jersey.

FWS – NOAA/National Marine Fisheries Service, in cooperation with the US Fish and Wildlife Service has recently produced a policy/action plan to eliminate by-catch (National Plan of Action). See <http://www.publicaffairs.noaa.gov/releases2001/feb01/noaa01031.html>

In the Great Lakes, by-catch an issue as well. For example, 500 common loons are caught annually in trap nets in the Great Lakes.

#### Prescribed fire –

Timing of prescribed fire regimes have important implications for Rails, American Bitterns, etc..  
When developing prescribed fire regimes, marshbird needs must be incorporated into schedules.

#### Lead Sinkers

Lead sinkers and loons is an issue. Some states are working towards eliminating use of lead sinkers/jigs,etc. Certain National Parks and NWR already ban use of lead. In Canada very few are moving this direction. Need to promote the use of alternatives.

#### Human Recreation/Human Disturbance/ Ecotourism/Non-consumptive Uses

Human disturbance – recreational use of areas. Jet skis, motorcraft, canoes, float planes, etc...are a big issue in South Central Alaska (float planes). The use of these vehicles in marsh habitats is resulting in the destruction of red-necked grebe nests and loon nests. This occurs throughout the ranges of these species.

This is really an issue throughout the continent.

In NJ jet skis are getting into the areas that boats can’t get to. Often these areas are feeding grounds. Jet skis both destroy habitat and disturb birds.

Urban environments – Least Bitterns and rails sometimes use urban environments where road kill may be an issue.

Excess pressure from non-consumptive uses – is this a problem? This is a problem for loons – the photographer gets too close, etc....

#### Harvest Management

With the exception of Sandhill Cranes and coots, there is a lack of knowledge about population parameters and movements (migratory routes and stopover points), as well as distribution and extent of harvest. This is important information for optimal harvest and species management.

The best estimates developed from the Harvest Information Program (HIP) are presently for the most numerous species, but there is work towards gaining information on all species. There needs to be additional effort to perform surveys and to sample enough hunters to get the necessary information.

Need to keep in mind that harvest pressure is light on marshbirds, and in general, not a concern. Even though bag limits seem high for some species (King Rails), the number taken is not. Also, harvest is fairly self-regulating. If rail populations decline, hunters won't find as many rails and will decrease their hunting activity, resulting in lower harvests. Thus, it is unlikely that lack of population data will lead to population declines due to hunting.

Rather, it's likely habitat loss/change that is the problem for low numbers of individuals. Better information on population parameters and harvest data will help us determine the factors we need to manage for marshbirds.

#### Towers/Powerlines/Fences

There is some question about the impact of fences and powerlines on rails.

Barbed wire fences in wetlands kill many birds, especially rails and coots.

Powerlines are a major mortality factor for cranes (sandhill and whooping). These losses slow recovery of listed species.

Proliferation of cell towers – have potential to become major mortality factor for migrants.

Wind Towers – don't know the affect of wind turbines on birds.

### **Regional Issues:**

#### **Mid-west –**

##### Wetland Loss

Restoration of mesic prairies and sedge meadows (associated upland) for Yellow and Black rails, King rail, cranes, American bittern, and Sora is important to sustain populations.

Cabin development is resulting in a loss of nesting habitat for grebes and loons.

##### Invasive Species

Invasive weed control is important in wet prairie habitats. For example, in wetlands containing purple loosestrife will not be used by rails.

Vegetation control - Reed canary grass is dominating areas that used to be sedge meadow and mesic prairie (all seasonal wetlands).

##### Wildlife Depredation

Cranes – there is some depredation by cranes of corn crops and in the prairies, grain crops. In most cases, sport hunting is used to control instead these birds instead of depredation permits. Propane cannons are used to deter the birds from the crops.

#### **East-**

Phragmites in east impacts King, Clapper and Black Rails. But in mid-west and east may be used by least bittern.

##### Harvest

We need to understand the impact of incidental harvest of marshbirds in Massachusetts.

### **Southeast**

#### Water Management

Gulf of Mexico – aggressive management of sediments (lack of sediment inflow from the Mississippi River) has detrimental affects on habitats used by Purple, Gallinules, King Rails, and Least Bitterns. This management also results in salt water intrusion.

Riparian backwater habitat – much of the associated habitat has been lost due to land use changes, levees, channelization.

There has been a loss of inland wetlands, important to rails.

#### Agricultural Practices/Shrimp Farming

There have been changes in the how rice is cultivated. Farmers are using shorter rotations. Rice fields used to be beneficial habitats for Purple Gallinules and King Rails. Now the rice is harvested before the birds complete nesting and young do not fledge.

Shrimp farming is transforming many wetlands into habitats that are not ideal or useful for marshbirds.

Water control within these farms, such as damming natural flows alters the circulation of water and results in hydrologic conditions that don't support marshbirds.

Tiling – which is used to drain farmland, eliminates productive wetlands for marshbirds by altering the aquifer.

#### Introduced Species

Purple swamp hen (native to Samoa) – released in Florida and has potential to become an invasive species itself in South Florida.

#### Wildlife Depredation

Purple Gallinules – rice farmers in the southeast have been granted a depredation order allowing them to take these birds “at will” when they are causing problems; the birds make harvest difficult.

### **West**

#### Pollution

Oil Pits – Intermountain West – look like wetlands. Birds go into them and are trapped. Are trying to get these covered. Also a problem west TX.

#### Introduced Species

Pacific Islands, San Fran Bay – introduced predators are a problem for nesting wetland birds.

#### Harvest

There is a need for better information on subsistence hunting in Alaska. For example, what is the impact of subsistence hunting on the loon population?

### **Canada**

#### Wetland Loss

There is a desire to produce lumber cheaply. Therefore, they are looking at converting marginal ag/wetlands to tree farms.

### **Mexico and Central America**

#### Wildlife Trade

Sunbitterns – being hunted to sell the skins/ wildlife trade. Guatemala, Belize...

#### Wetland loss

Yucatan – coastal wetlands will not be able to move inland with sea level rise because of development. Shoreline development along lakes and coasts is a big problem.

Yucatan – sinkholes are normally surrounded by native vegetation. But the tourist industry is removing the vegetation to allow tourists to dive in sinkholes. This is impacting tropical rail populations.

NW Mexico in the Gulf of California - Nautical ladders – there is an effort to build as many marinas as they can to encourage tourism. All these potential marinas will be placed in wetland habitats resulting in direct and indirect impacts on marshbirds.

Salt mining in Mexico may have impacts on marshbirds.

#### Disease

Mexico (central) unknown disease affecting waterbirds in general. In El Nino years, there is a large mortality of eared grebes.



## Development of a Continental Monitoring Program (M. Howe, C. Conway, S. Timmermans)

Recent funding has allowed renewed efforts in this area. Important issues include the use of play-back recordings and the location of sampling.

Play-back vs Passive: Using play-backs (broadcasting call recordings) does increase detection, and users may be motivated by the additional activity and opportunity to ID calls. However, there are drawbacks: play-backs may reduce detection of non-target species; play-backs may increase variance in trends (which is the true goal of the monitoring); birds may become habituated to play-backs; there could be equipment variance; the dialect of the recorded calls may affect response; equipment and tapes require additional funds; play-backs may disturb courtship; birds might move out of their preferred habitat to move closer to the recording.

C. Conway suggests a combination passive-broadcast approach, with passive listening preceding the use of a recording. The sampling intervals should be of equal duration, with a consistent order of species.

Sampling Frame: Wetlands shift locations over time, so static survey routes may show false trends. Habitat-based sampling would address these concerns; under this scheme, random sites are selected from a map of relevant habitat. Alternatively, one could randomly select a section from a large grid and sample all wetlands within in.

Jon Bart was said to recommend an approach that combines the sampling of all permanent wetlands identified on the National Wetlands Inventory, with an area-based approach in which selected areas are used as indices. The drawbacks of this approach include its complexity and the lack of a national inventory in Canada and Mexico.

Jon Bart (not present at the meeting) was nominated to head up a writing team for a section on monitoring.

## Process to Identify Important Bird Areas for Marshbirds

Dan Niven and John Cecil gave a presentation on the National Audubon Society's IBA program, and distributed a sign-up sheet for ideas on potential sites for marshbirds. IBA programs at the State level, where they exist, may be led by Audubon chapters, ornithological societies, state agencies, or academic institutions. National Audubon Society will act as a liaison to the States, as well as nominating and reviewing national-level sites.

## Priority Research Needs for Marshbirds

*A potential source for management issues are the (Great) Lake Area Management Plan, Beneficial Use Impoundment? For Wildlife and Wildlife Habitat. These write-ups may also exist for coastal regions. (M.S.)*

## **All Marshbird Species**

### Determine populations and movements

Identify "populations" with common breeding, migration, and wintering areas; probably will require genetic work.

Determine origins (breeding area) of wintering/staging populations of all migratory species through isotope analysis and/or satellite tracking.

In particular, identify the major staging and wintering areas for loons and grebes.

#### Population estimates and trends

Determine how well BBS data capture trends in marshbird populations.

Follow-up study to investigate how use of play-back increases detectability and power to detect trends in marshbirds with design of randomly selected wetlands and b) length of passive listening period equals length of play-back period for all species combined.

Comprehensive, range-wide monitoring. Sample wetlands need to be randomly selected (with statistically appropriate modifications, if necessary) to be representative of marshbirds and wetlands as a whole. National Wetland Inventory data would be a good starting point. All sample points must be geo-referenced to enable use of data in habitat analysis.

Wetland numbers/conditions must be considered in surveys and modeling. Rather than set up a separate wetland survey, perhaps we could piggyback with waterfowl May pond counts.

#### Habitat relationships

Habitat modeling. Marshbird-habitat relationships should be determined at macrohabitat, landscape, and regional scales. If possible, water quality/characteristics should be included along with variables for land use, competitive interactions, etc. Modeling should take place at three levels: presence/absence, density, and reproductive success/survival, which will ultimately drive populations.

Better information on recruitment of various species in different wetland types. Better understand effect of landscape features on bird occupation of wetlands (i.e., do landscape features adjacent to and surrounding a wetland area -- other wetlands, roads, buildings, disturbance, etc. -- alter their use?)

Better information on effect of wetland area, type and placement on use by various birds (i.e., how to we prioritize these areas for purchase, lease, etc.)

Vegetation management in restored wetlands. Specifically, management to reduce exotic vegetation and enhance native vegetation.

Determine impact of invertebrate food supplies on densities of marshbirds (grebes, bitterns, rails), also annual variation

#### Impact of hunting/harvest

#### Tradeoffs among species relevant to water level manipulations/vegetation.

Seasonal time of water level manipulation for species needs.

Identify correlation of habitat and management needs among waterfowl, waterbirds and shorebirds. Assess which marshbird species do NOT benefit from waterfowl management. Investigate opportunities and do

feasibility study on integrating and incorporating marshbird habitat management in waterfowl management programs.

## **Loons and open-water Grebes**

### All:

Identify critical staging areas for migration

Identify key wintering grounds and monitoring sites

Migration routes are largely unknown. To address: GPS fitted transmitters would be highly useful for determining these routes from different parts of the breeding range. This would also provide insight into locations of wintering grounds, which is also poorly documented. (i.e., what are the hotspots of wintering ranges)

Population estimates on a continental scale. Poorly known, but local/regional data is good in some spots. Need to start compiling this local/regional data. (Common loons are a good example of a success story). Specifically need additional estimates for all loon and grebe species breeding in northern areas of the Canadian Provinces, Northwest Territories, Yukon, Interior Alaska (?) existing data are poor.

Determination of population declines. Habitat loss throughout much of the breeding range for loons/grebes is not a concern (Horned and Pied-billed Grebes are exceptions) and do not explain population declines reported in the BBS. Therefore, something related to migration or wintering grounds may be the source of population declines. Perhaps a) bioaccumulation of toxins from marine ecosystems or b) by-catch mortality in marine fishing nets, or c) others? These potential sources of population declines may be a good start for research.

For all, impact of Native American fisheries (gill nets, trap nets) on birds in the Mackinee Straits, north Lake Huron, Whitefish Point region.

### Common Loon

Connect breeding and wintering populations.

Determine importance of southern Lake Michigan as a loon migration corridor and possible staging area. It is likely one of the major fall corridors for Gulf Coast wintering birds.

Quantify demography (age structure) of various populations (breeding/winter). This implies that monitoring programs will be continued and developed throughout range.

Gather habitat data (digital lake and wetland atlases) from throughout range and integrate with population estimates from throughout range, to produce a spatially-specific population model of Common Loons throughout range and specific BCRs where they occur.

Assess manipulated (reservoirs) and degraded breeding/wintering habitat

Pursue Site-specific conservation of lake habitat

Determine Major population level impacts from

Mercury contamination

Marine Oil Spills

Secondary level impacts from

Shoreline development/recreational activities

Other contaminants, e.g., lead sinkers and jigs (Need to determine if this source of mortality the largest yet identified is having population effects (Canadian regulation of lead sinkers and jigs may not be possible to regulate until additional data are collected and analyzed. Once done, more information needs will be identified)

Assess body condition of breeding adults throughout range (or at least western and eastern populations).

#### Yellow-billed Loon

Identify staging area for Alaska North Slope population

Estimate available habitat on breeding grounds

Determine population impacts from:

Oil drilling on breeding areas in Alaska

Marine oil spills

#### Pacific/Arctic Loons

Determine population impacts from marine oil spills

Pacific: Identify sites/programs to monitor population sizes/trends

Assess importance and use of herring spawn sites to populations

Do satellite telemetry study of adults, hatching year, and sub adults to identify winter distribution and important sites. Use this data to design a suitable/appropriate winter survey program.

#### Red-throated Loons

Determine population impacts from:

Commercial by-catch in fish nets

Subsistence take in Alaska

Marine Oil spills

Assess impact of recreational boating on staging and foraging areas in southern N. Jersey and lower Delaware Bay.

#### Red-necked Grebes

Identify spring and early winter concentration points (if any) for the Great Lakes regions. Also wintering grounds for Great Lakes migrants.

Establish species/habitat relationships for both breeding and wintering areas (habitat types for each BCR).

Identify and quantify molt sites and molt ecology

Identify/implement range-wide population trend assessment with index.

Determine population impacts from:

Marine oil spills and changes in habitat at key staging-molting areas

### Horned Grebes

Connect breeding areas with east and west coast wintering areas

Identify and quantify molt sites and molt ecology

Establish species-habitat relationship for all BCRS where they breed

Establish species-habitat relationship for all BCRs where they winter

Identify and build trend assessment index.

Determine population impacts from:

Loss of breeding habitat

Marine oil spills

### **Northern Migratory Rails and Bitterns & Grebes, Coots, and Gallinules**

#### All Northern Migratory Rails and Bitterns

More accurate estimates of population trends for all species

Determine population estimates and distribution (both breeding and wintering) of ubiquitous marsh birds.

Sources: BBS, Atlas, Heritage, CBC, local/regional books)

Use CBC data to identify important wintering areas in U.S. and Mexico

Use BBS, Atlas, PIF assessments to identify important breeding areas

Identify Wintering habitat requirements

Relate specific wintering areas to breeding areas

Calculate Density estimates for each habitat type

Determine distribution and amount of each important habitat type in each decade as far back in history as possible

Explore effects of current management practices for other taxa (e.g, waterfowl management practices) on marshbirds

Examine importance of landscape-scale distribution and division of wetlands to maintaining population viability

Identify important migration stopover points

Validate BBS trends

#### American Bittern, Least Bittern, Virginia Rail, Sora, Pied-billed Grebe

Identify migration route and stop-over areas

Determine wintering habitat needs

Assess food resources availability (i.e., the timing of availability and types of food)

Assess complex habitat (marsh and grasslands) criteria, in relation to marsh size requirements.

Are any relatively important breeding areas for American Bitterns, Sora or Virginia Rail not identified by existing data (BBS route, other data?)

Where do American and Least Bitterns from important breeding regions winter?

Where are the most important wintering locales (sites, regions?) for American and Least Bitterns?

Better describe winter habitat of American Bitterns

#### Least Bittern

Migration routes

Return rates to former breeding grounds

Movement and habitat use prior to fall migration

Movement and habitat use of juveniles

Population estimate, distribution and population trends, availability of appropriate habitat.

Wintering habitat needs

Survival of adults and juveniles

Extent of double brooding and re-nesting

Marsh size and distribution requirements (e.g., minimum size) for breeding and wintering

Verification of response rates to passive listening and broadcast call recordings

Use of restored and created wetlands and effects of management techniques

#### Black Rail

Identification of existing populations in SE Wisconsin, SMN, and N. Iowa using play-back survey procedures.

#### Black Rail, Yellow Rail, Clapper Rail

Effects of coastal marsh burning practices on marshbird populations timing, intensity, ignition pattern. Fire is used heavily as a marsh management tool, but could have very negative impacts on some of the rails.

#### Common Moorhen

Characteristics of breeding habitat in North Ohio (Lake Erie marshes) and NE Illinois wetlands. Populations in both areas have seriously declined in recent decades.

#### **Southern/tropical marshbirds**

#### All

For all, distribution and status of the species in the group.

Habitat descriptions and conditions

Determine location, status and threats to the habitats used by the species group (including GIS work and cross-walking with existing AICAS)

Tune up information on distribution  
Understand habitat use  
Obtain densities by habitat  
Figure out some numbers  
Research on regional movement of some species  
Clarify taxonomy for Mexican/King/Clapper Rail

### In Mexico

To be able to do this research we need training workshops on research techniques (identification, play-back, etc.) Also need funds to buy equipment (binoculars, tape recorders/players, flat-bottom boats, motors, etc)

Conservation status of all tropical non-wading species needs to be assessed. Training of people in inventorying marshbirds is a must. A marshbird techniques training workshop (or two) could be a good start. The shorebird workshops taught by Manomet staff could be a suitable model. (Maybe B. Eddleman?) Osvel Hinojosa (sp?) currently a PhD student in the wildlife program of the U. of Arizona could be of use on the marshbirds issues in Mexico. He did his MSc. Thesis on Yuma Clapper Rails in Mexico.

## **Cranes**

### Sandhill Cranes

Determine subspecies status and distribution for Pacific Flyway cranes.

Use satellite monitoring to identify breeding, migration and wintering ranges of various subspecies of cranes using the Pacific Flyway.

Develop population estimates for each subspecies. Work on subspecies genetics issues.

**Marshbird Plan Writing Team** (Does NOT include all potential team members – only those that indicated which groups they worked in). Also, Bitterns were moved from group 4 to group 2 so some of the “team members” from group 4 will need to be involved in group 2).

(1) Loons, Red-necked, Horned, Eared and Western Grebes

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Team members– Daniel Casey, Stephen Hanus, Jon McCracken, Robert Russell

(2) Least and Pied-billed Grebes, Purple Gallinule, Coots, Moorhens, and Bitterns

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Team Members – Bob Altman, Pamela Bilbeisi, Bill Howe, David Klute, Heidi Bogner, Soch Lor, Neal Niemuth

(3) Southern resident marshbirds, tropical rails, Hawaiian Coot, Caribbean Coot, Purple Swamphen

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(4) Northern Migratory Rails –

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